

# **INTEGRATED CIRCUIT WITH COMMUNICATION AND RFID FUNCTIONS AND METHODS FOR USE THEREWITH**

## CROSS REFERENCE TO RELATED APPLICATIONS

[0001] Not applicable

## BACKGROUND OF THE INVENTION

[0002] 1. Technical Field of the Invention

[0003] This invention relates generally to mobile communication devices and more particularly communication devices that include RFID functionality.

[0004] 2. Description of Related Art

[0005] Communication systems are known to support wireless and wire lined communications between wireless and/or wire lined communication devices. Such communication systems range from national and/or international cellular telephone systems to the Internet to point-to-point in-home wireless networks. Each type of communication system is constructed, and hence operates, in accordance with one or more communication standards. For instance, wireless communication systems may operate in accordance with one or more standards including, but not limited to, IEEE 802.11, Bluetooth, advanced mobile phone services (AMPS), digital AMPS, global system for mobile communications (GSM), code division multiple access (CDMA), local multi-point distribution systems (LMDS), multi-channel-multi-point distribution systems (MMDS), radio frequency identification (RFID), Enhanced Data rates for GSM Evolution (EDGE), General Packet Radio Service (GPRS), and/or variations thereof.

[0006] Depending on the type of wireless communication system, a wireless communication device, such as a cellular telephone, two-way radio, personal digital assistant (PDA), personal computer (PC), laptop computer, home entertainment equipment, millimeter wave transceiver, RFID tag, et cetera communicates directly or indirectly with other wireless communication devices. For direct communications (also known as point-to-point communications), the participating wireless communication devices tune their receivers and transmitters to the same channel or channels (e.g., one of the plurality of radio frequency (RF) carriers of the wireless communication system or a particular RF frequency for some systems) and communicate over that channel(s). For indirect wireless communications, each wireless communication device communicates directly with an associated base station (e.g., for cellular services) and/or an associated access point (e.g., for an in-home or in-building wireless network) via an assigned channel. To complete a communication connection between the wireless communication devices, the associated base stations and/or associated access points communicate with each other directly, via a system controller, via the public switch telephone network, via the Internet, and/or via some other wide area network.

[0007] Wireless communication devices can be coupled to various peripheral devices on a wired basis. In addition, a Bluetooth communications link allows peripheral devices such as a headset to be coupled to a communications device on a wireless basis.

[0008] The advantages of the present invention will be apparent to one skilled in the art when presented with the disclosure herein.

## BRIEF SUMMARY OF THE INVENTION

[0009] The present invention is directed to apparatus and methods of operation that are further described in the following Brief Description of the Drawings, the Detailed Description of the Invention, and the claims. Other features and advantages of the present invention will become apparent from the following detailed description of the invention made with reference to the accompanying drawings.

## BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S)

[0010] FIG. 1 is a schematic block diagram of an embodiment of a communication system in accordance with the present invention;

[0011] FIG. 2 is a schematic block diagram of an embodiment of another communication system in accordance with the present invention;

[0012] FIG. 3 is a pictorial diagram representation of a communication device and peripherals in accordance with an embodiment of the present invention.

[0013] FIG. 4 is a block diagram representation of a communication device and peripherals in accordance with an embodiment of the present invention.

[0014] FIG. 5 is a pictorial diagram representation of a communication device and RFID terminal device in accordance with an embodiment of the present invention.

[0015] FIG. 6 is a block diagram representation of a communication device and RFID terminal device in accordance with an embodiment of the present invention.

[0016] FIG. 7 is a schematic block diagram of an embodiment of an integrated circuit in accordance with the present invention;

[0017] FIG. 8 is a schematic block diagram of another embodiment of an integrated circuit in accordance with the present invention;

[0018] FIG. 9 is a schematic block diagram of an embodiment of a baseband processing module supporting a plurality of transceiver sections in accordance with the present invention;

[0019] FIG. 10 is a schematic block diagram of an embodiment of an RF transceiver in accordance with the present invention;

[0020] FIG. 11 is a schematic block diagram of an embodiment of millimeter wave transceivers 29 and 121 in accordance with an embodiment of the present invention;

[0021] FIG. 12 is a top view of a coil 330 in accordance with an embodiment of the present invention;

[0022] FIG. 13 is a side view of a coil 330 in accordance with an embodiment of the present invention;

[0023] FIG. 14 is a bottom view of a coil 330 in accordance with an embodiment of the present invention;

[0024] FIG. 15 is a flow chart of an embodiment of a method in accordance with the present invention;

[0025] FIG. 16 is a flow chart of an embodiment of a method in accordance with the present invention;

[0026] FIG. 17 is a flow chart of an embodiment of a method in accordance with the present invention; and